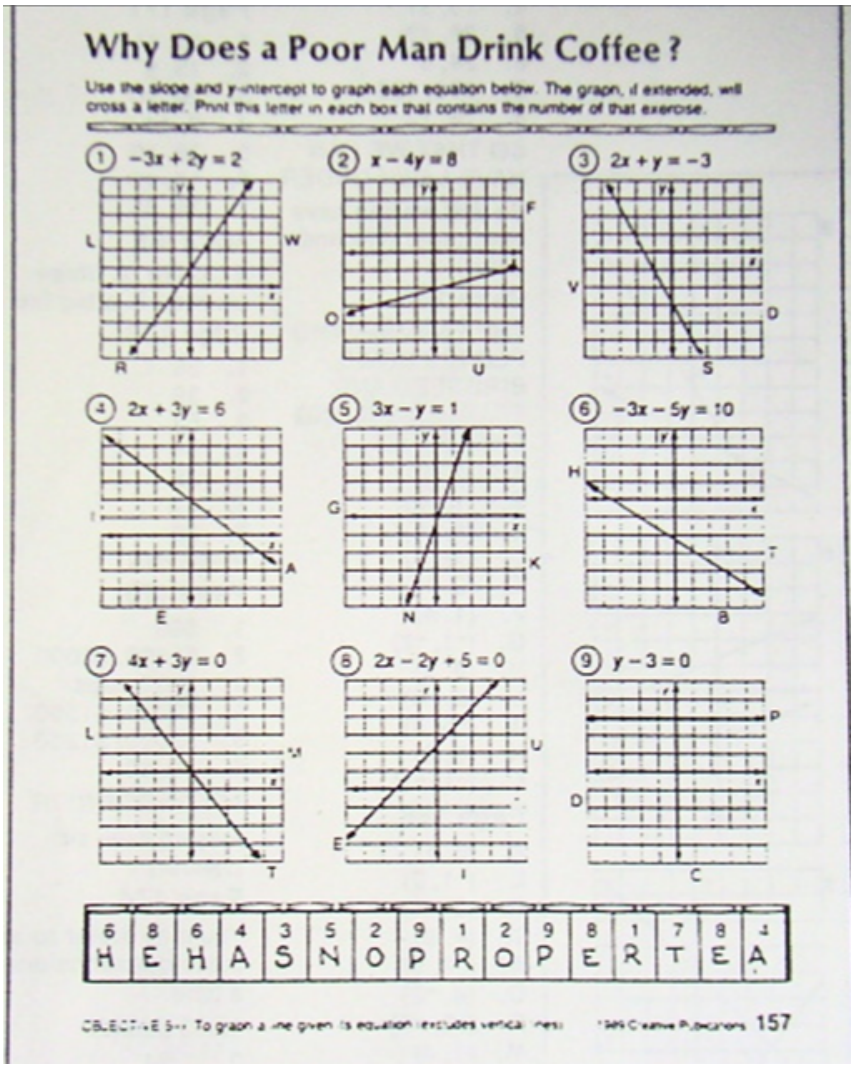
SOLUTIONS/QUESTIONS FROM THE HOMEWORK???



Why Does a Poor Man Drink Coffee?

Use the slope and y-intercept to graph each equation below. The graph, if extended, will cross a letter. Print this letter in each box that contains the number of that exercise.

① $-3x + 2y = 2$ ② $x - 4y = 8$ ③ $2x + y = -3$

④ $2x + 3y = 6$ ⑤ $3x - y = 1$ ⑥ $-3x - 5y = 10$

⑦ $4x + 3y = 0$ ⑧ $2x - 2y + 5 = 0$ ⑨ $y - 3 = 0$

6	8	6	4	3	5	2	9	1	2	9	8	1	7	8	4
H	E	H	A	S	N	O	P	R	O	P	E	R	T	E	A

OBJECTIVE 5: To graph a line given its equation (excludes vertical lines) ©1985 Creative Publications 157

HE HAS NO PROPER TEA

He has no proper tea (property).

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SHE HAD A BUM STEER

Linear Inequalities:

Inequality sign - could be one of the following...

???

$>$ GREATER THAN

$<$ LESS THAN

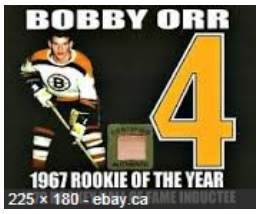
$\geq$ GREATER THAN OR EQUAL TO

$\leq$ LESS THAN OR EQUAL TO

$\neq$ NOT EQUAL TO

When solving an in-equation, all the steps are the same EXCEPT when it comes to isolating...

4 $<$ 11 , fill in the box.



VS

Now divide both by -1

-4 $>$ -11, fill in the box.

RULE: If you multiply or divide by a negative, reverse the inequality sign!!!

NOTES - Graphing a Linear Inequation.docx

When the solution set to a linear inequality is continuous and the sign does not include equality, use a dashed line for the boundary and shade the solution region.

Example: Graph the solution to: $2x - 3y < 6$.

Test → TRUE $2(0) - 3(0) < 6$, $0 < 6$

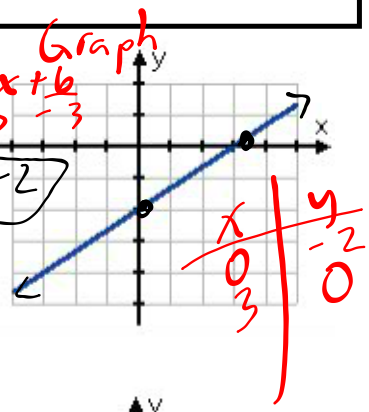
$2x - 3y = 6$ Graph

$-3y = -2x + 6$

$y = \frac{2}{3}x - 2$

First, solve for the equation in the slope – y intercept form ($y = mx + b$).

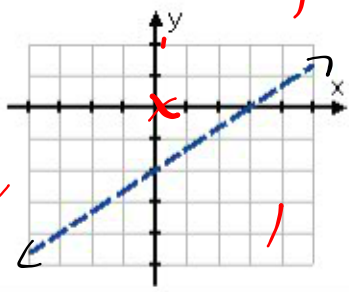
$2x - 3y < 6$
$-3y < -2x + 6$
$y > (2/3)x - 2$



STEP 1: Graph the boundary line

Find the "equals" part, which is the line $y = (2/3)x - 2$. It looks like this:

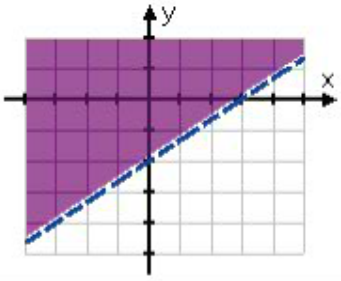
But this example is a **strict** inequality. That is, it's only "y greater than." We denote strict inequalities on the number line (such as $x > 5$) by using an open dot instead of a closed dot. In the case of these linear inequalities, the notation for a strict inequality is a dashed line. So the boundary line of the solution region actually looks like this:



STEP 2: Decide on dashed or solid

< OR > → ≤ OR ≥ (=)

By using a dashed line, we can still identify the boundary line, but the dashed line indicates that the boundary line isn't included in the solution. Since this is a "y greater than" inequality, we will shade above the line, so the solution looks like this:



(0, 0)

STEP 3: Pick a 'test point' and verify

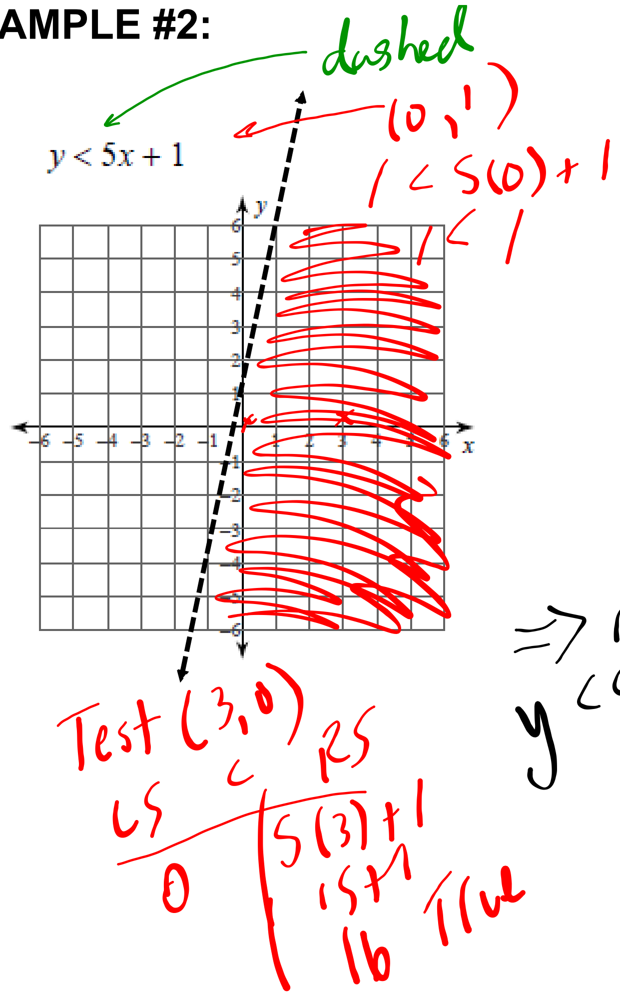
STEP 4: Shade

VIDEO - Graphing Inequalities

Click HERE to watch the video!!!

EXAMPLE #2:

$y < 5x + 1$



Steps ...

① Rearrange equation

$y = \frac{5}{1}x + 1$ ← y int

② Graph boundary line

③ Test point (0,0) is a soln

⇒ in original inequation

$y < 5x+1$

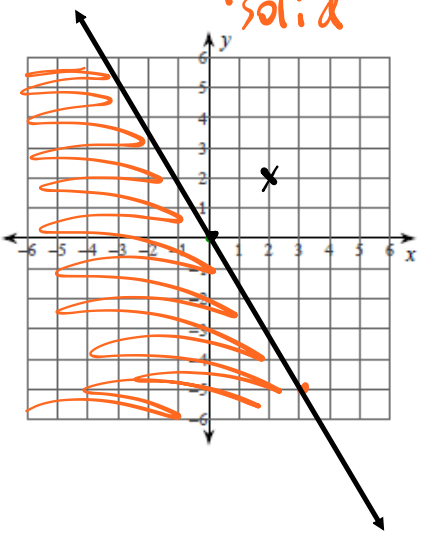
LS	< RS
0	5(0) + 1
	1 True

④ Shade where the solutions are found

EXAMPLE #3:

$3y \leq -5x$

solid



$\frac{3y}{3} = \frac{-5x}{3}$

$y = -\frac{5}{3}x$

Rise -5
Run 3

y-int (0,0)

Test (2,2) → $3y \leq -5x$

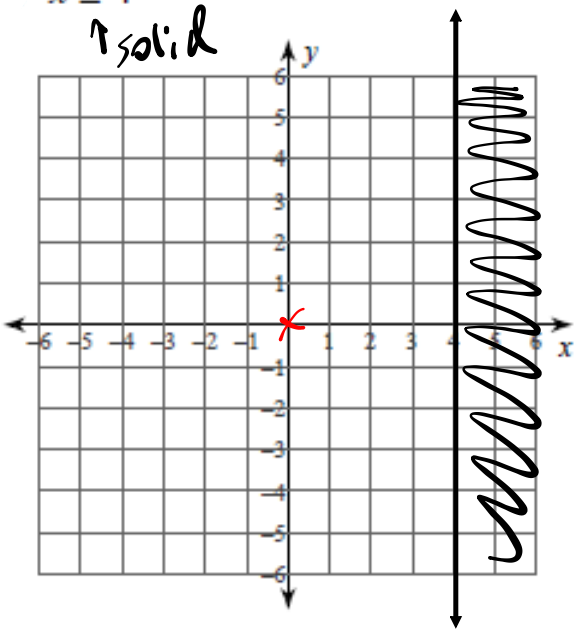
LS	RS
$3(2)$	$-5(2)$
6	-10

$6 \not\leq -10$ False

EXAMPLE #4:

$x \geq 4$

↑ solid



$x = 4$

* vertical line

Test (0,0)

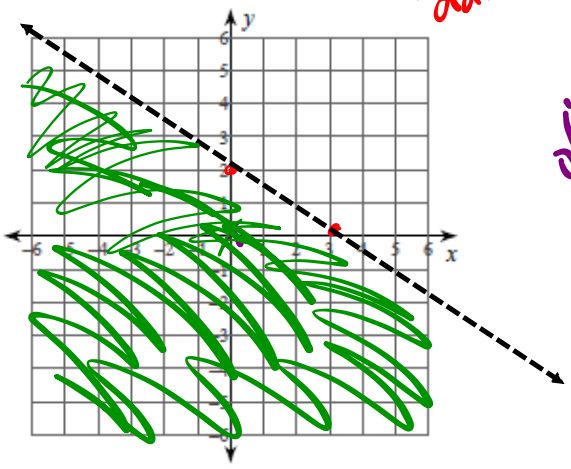
$x \geq 4$

LS $\geq$	RS
0	4 False

EXAMPLE #5...

$$2x+3y-6<0$$

↑ dashed



original

$2x+3y-6=0$

$\frac{3y}{3} = -\frac{2x}{3} + \frac{6}{3}$

$y = -\frac{2}{3}x + 2$

Test (0,0)

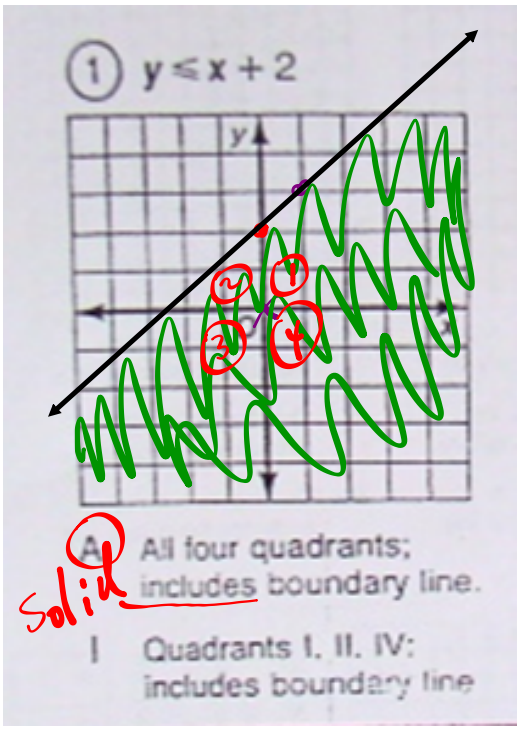
$2x+3y-6 \leq 0$

$2(0)+3(0)-6 \leq 0$

$-6 \leq 0$ True

HOMEWORK...

Puzzle Worksheet - Graphing Linear Inequalities with Two Variables.pdf



$y = 0x + 2$

Rise 1
Run 1

1 y int

Test (0,0)

x y

$y \leq x + 2$

LS ≤	RS
0	0 + 2
	2 True

Attachments

NOTES - Graphing a Linear Inequation.docx

Puzzle Worksheet - Graphing Linear Inequalities with Two Variables.pdf